Aug. 2, 1927. 1,637,554

W. C. COLEMAN

HEATING STOVE

Filed Oct. 3, 1925 2 Sheets-Sheet 1

Fig. 1.

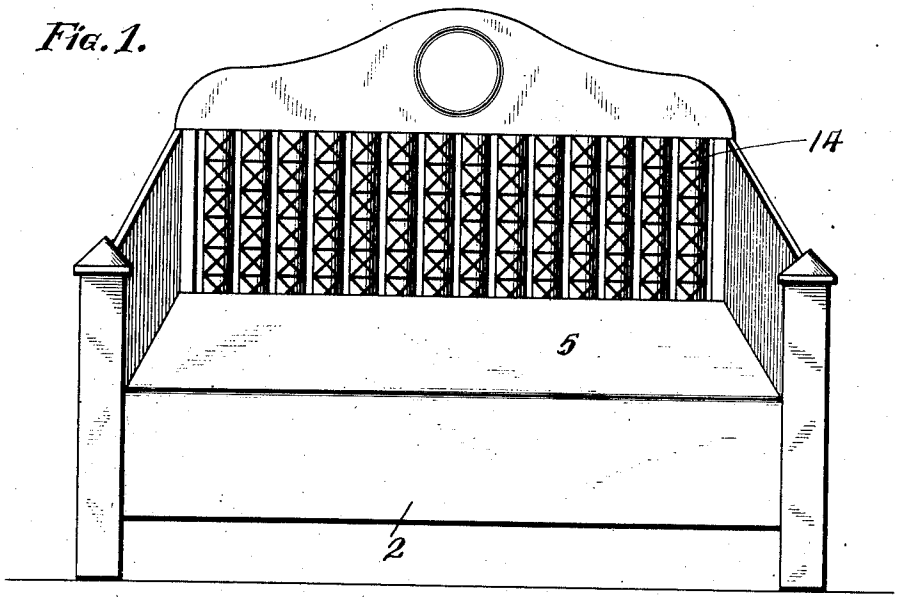

Fig. 2.

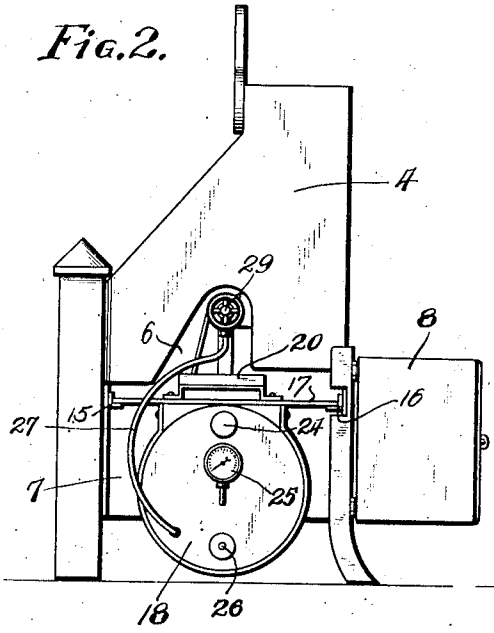

Fig. 3.

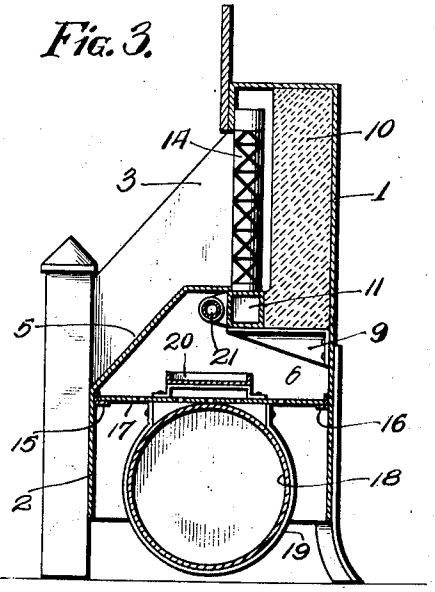

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Fig. 4.

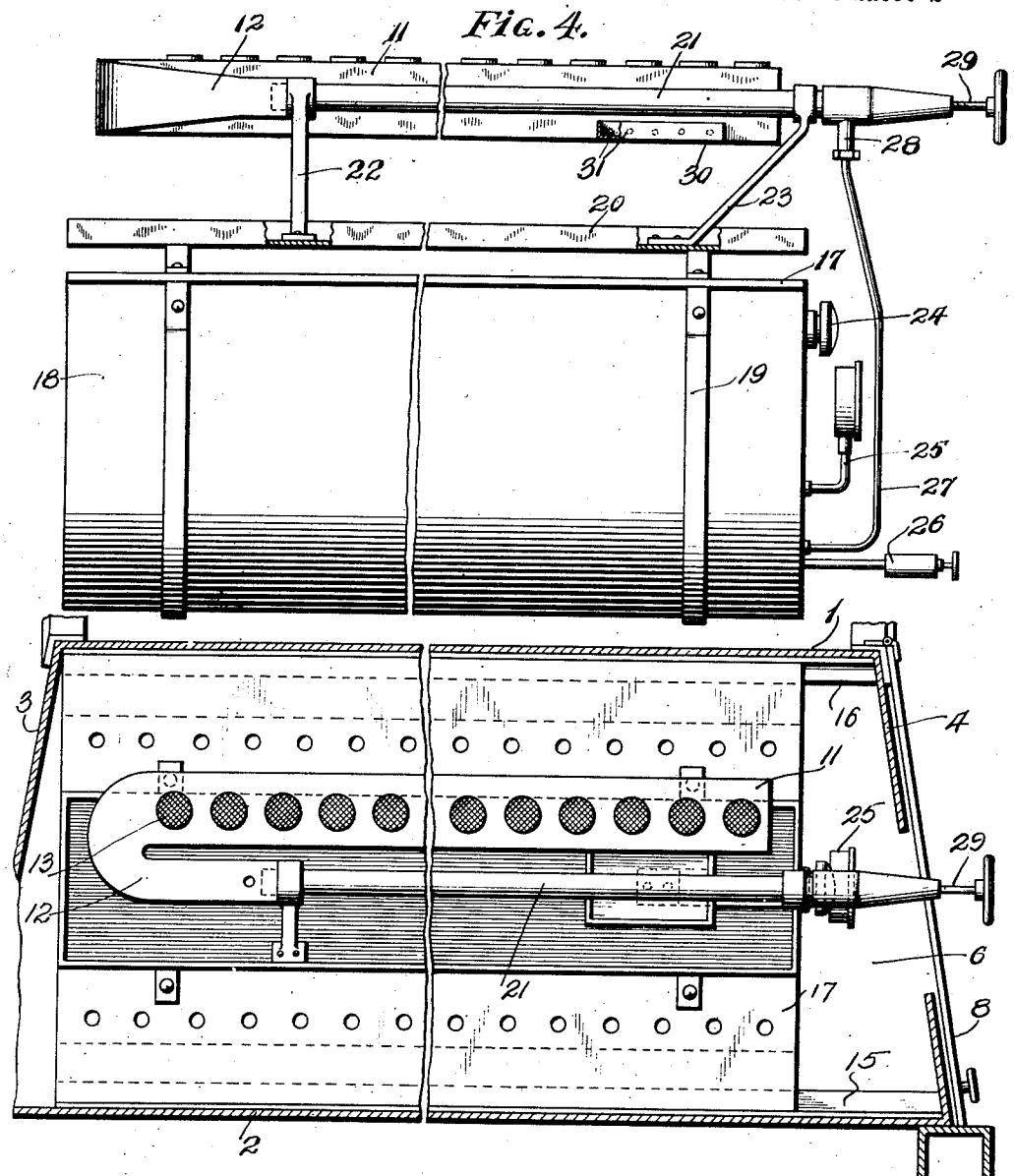

Fig. 5.

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UNITED STATES PATENT OFFICE.

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HEATING STOVE.

Application filed October 3, 1925. Serial No. 60,248.

This invention relates to vapor burning stoves and particularly to that class of heating stoves in which liquid hydrocarbon is vaporized mixed with air and burned as a fuel.

It is desirable to conveniently locate the supply tank or receptacle in such a manner that it may be readily removed from the stove structure for the purpose of inspection and repair and for the purpose of filling the tank so I have provided a novel unitary structure consisting of a tank, a vapor generator, a drip pan and an insulating plate all of which are rigidly secured together so that the unitary structure may be applied to the stove with the vaporizer in line with Bunsen tube of the burner proper. Therefore the movable part will maintain proper cooperation with the immovable parts with the stove structure. The advantage of removing the tank and with it the vapor generator will be apparent as the nature of the invention is better understood, reference being had to the accompanying drawings, in which:—

Figure 1 is a front view of a stove to which my invention may be applied.

Figure 2 is an end view showing the door for the space which encloses the removable unit.

Figure 3 is a cross sectional view through the stove.

Figure 4 is an enlarged elevational view of the removable unit, and

Figure 5 is a plan view of the burner, the vapor generator, the drip pan and the baffle plate, the stove case being shown in horizontal section.

The actual construction of the stove casing is immaterial but is here shown as having a back wall 1, a front wall 2 and end walls 3 and 4. The front wall 2 has an upwardly inclined facing plate 5 which encloses a substantially rectangular space 6 into which the removable unit may be introduced to the open end 7 normally closed by the door 8, (see Fig. 2). Carried by the bracket 9 supported by the back plate 1 is an insulating panel 10 of fire clay or the like. In front of the member 10 supported upon the bracket 9 is a burner shown as comprising a manifold 11 with a goose neck 12 at one end consisting of a Bunsen tube or mixing tube to receive the vapor under pressure and mix it with the air prior to introduction into the manifold. The actual construction of the burner is not a part of my invention since it has been used heretofore. The burner 12 may have burner tips 13 to aline with radiants 14 similar to those used in gas stoves or heaters.

The front plate 2 and the back plate 1 support guides 15 and 16 which in turn support the longitudinal edges of an insulating plate 17 which carries the tank or receptable 18, the latter being suspended from the plate 17 by straps 19. The insulating plate supports a drip pan 20 which is superposed above it and which in turn supports a vaporizer or generating tube 21 through the medium of the brackets 22 and 23 fastened to the drip pan 20 and the vaporizing tube 21 in any appropriate manner. The tank 18 has the usual filler cap 24, a pressure gage 25 and a pressure pump 26. The outlet for the tank 18 communicates with a flexible hollow wire or conduit 27 discharging into the generator tube 21 at 28, the port being controlled by a valve 29 as is well understood.

It will be noted that the tank 18 the drip pan and the vaporizer may all be withdrawn as a single unitary rigid structure and that the vaporizer 21 is supported wholly by the brackets 22 and 23, this being desirable because the tube 27 is usually of fine hollow wire and it therefore cannot of itself support another element. It will also be observed that the Bunsen end of the burner 11 is so disposed that when the removable unit is moved longitudinally into the stove casing that the end of the generator 21 will aline with the inlet end of the Bunsen tube. It will further be observed that there is a priming pan 30 on the front edge of the burner 11 into which raw gasoline may flow from the manifold 11 to furnish sufficient fuel to initially heat the generator or vaporizer 21 and since the gasoline flows through the holes 31 it will be apparent that after the gasoline is vaporized and mixes with the air and enters the manifold 11 that it will pass out through the holes 31 in the form of vaporous fuel, and that it will remain in vapor phase so long as the generator 21 is being heated. This it will do during the entire time the burner 11 is functioning because the vapor passing from the holes 31 will maintain the vaporizer or generator 21 hot enough to change the fuel from the liquid phase into the vapor phase.

While I have described the structure illus-

trated more or less in detail the essential part of my invention is the rigid unitary structure including the tank which may be conveniently removed from the stove casing and as conveniently introduced into the stove casing without requiring tools for the removal or application of the same, generator etc. I am aware that prior to my invention fuel tanks have been utilized and that removable fuel tanks have been associated with heating stoves but the structure contemplated by my invention has not heretofore been employed.

What I claim and desire to secure by Letters-Patent is:

1. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connections with the tank and means of connecting the vapor generator to the tank, the unit being bodily movable into the casing to aline the generator with the vapor inlet in the burner, and spaced supporting means carried by the casing and removably supporting the unit in cooperative relation with the vapor inlet.

2. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connections with the tank and means for rigidly connecting the generator to the tank, the unit being movable through the end of the casing to bring the end of the generator in line with the vapor inlet of the burner, and spaced guiding means carried by the casing and arranged to receive and support the said unit and guide the same in cooperative relation with the vapor inlet.

3. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connections with the tank and means for rigidly connecting the generator to the tank, the unit being movable through the end of the casing to bring the end of the generator in line with the vapor inlet of the burner, the unit being bodily movable out of the casing so that the tank can be filled and spaced horizontal guiding means carried by the casing and arranged to receive and support the unit and guide the same in cooperation with the vapor inlet.

4. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connection with the tank and a heat insulator between the tank and the vapor generator, the unit being bodily movable into the casing to aline the generator with the vapor inlet in the burner, and spaced supporting means carried by the casing and arranged to receive the unit and removably support the same in cooperative relation with the vapor inlet.

5. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connection with the tank, the unit being bodily movable into and out of the casing, the generator alining with the vapor inlet of the burner when the unit is within the casing and a heat insulating plate interposed between the burner and the tank, and spaced supporting means receiving the insulating plate and removably supporting the unit in cooperative relation with the vapor inlet.

6. A stove comprising a casing, a burner in the casing having a vapor inlet, a unit removably associated with the casing, the unit comprising a tank to contain liquid under pressure, a vapor generator having valve connection with the tank, the unit being bodily movable into and out of the casing, the generator alining with the vapor inlet of the burner when the unit is within the casing and a heat insulating means interposed between the burner and the tank, the heat deflecting baffle having a double wall to provide an air space between the two elements of the double wall, and spaced supports removably receiving the heat insulating means and supporting the unit in cooperative relation with the vapor inlet.

7. A stove comprising a casing having a burner with a vapor inlet, a removable unit comprising a tank to receive liquid under pressure, a vapor generator and valve communication with the tank, a heat element between the generator and the tank, the heat insulating element having a wall around its edges directed toward the generator to serve as a catch pan for overflow of liquid from the generator, and spaced supporting means carried by the casing and arranged to removably receive the said unit and support the same in cooperative relation with the vapor inlet.

8. A stove comprising a casing having a burner in the casing a vapor inlet in combination with a removable unit comprising a liquid containing tank, a vapor generator in spaced relation with said tank, a heat insulating plate secured in spaced relation between the vapor generator and the tank, the unit being slidable into the casing to aline the generator with the unit of the burner, and spaced guides receiving the insulating plate for supporting the unit and for guiding the same into cooperative relation with the vapor inlet.

9. A stove comprising a casing having an end opening and a burner fixed in the casing with a vapor inlet, in combination with a unit comprising a pressure tank to contain liquid hydrocarbon, a vapor generator in spaced relation with respect to the tank having communication therewith and a heat insulating plate in spaced relation with the tank and generator, the heat insulating plate being located between them, the entire unit being insertable into the casing, and spaced supports carried by the casing and removably receiving the heat insulating plate and supporting the unit in cooperative relation with the vapor inlet.

10. A stove comprising a casing having an end opening and a burner fixed in the casing with a vapor inlet, in combination with a unit comprising a pressure tank to contain liquid hydrocarbon, a vapor generator in spaced relation with the tank and generator, a heat insulating element located between them, the entire unit being insertable into the casing, through an end opening, and spaced supporting means carried by the casing and receiving the heat insulating element and removably supporting the unit in cooperative relation with the heating unit.

11. A stove comprising a casing closed at the front, back and one end and provided at the opposite end with a door, a burner fixed in the casing and having a vapor inlet, spaced front and rear guides mounted within the casing and extending inwardly from the open end thereof, and a unit including a heat insulating plate slidable in the guides, a pressure tank mounted beneath and carried by the said plate and adapted to contain liquid hydrocarbon, a vapor generator in spaced relation with the tank and located above the insulating plate, and a drip pan supporting the vapor generator and constituting an insulating element and mounted upon the insulating plate in spaced relation with the same, said unit being movable through the open end of the casing into and out of position and being guided by the said guides into cooperative relation with the vapor inlet.

In testimony whereof I affix my signature.

WILLIAM C. COLEMAN.